

TITLE**ANIMAL RAISING AND LOWERING SYSTEM**CROSS-REFERENCE TO RELATED APPLICATION

5 This application claims the benefit of U.S.
provisional patent application Serial No. 60/456,651,
filed March 21, 2003, hereby incorporated herein by
reference.

FIELD OF THE INVENTION

10 The present invention relates to an animal raising
and lowering system and more particularly to an
elevator-type mechanism to raise and lower an animal
into respective upper level, ground level, and lower
15 level positions.

BACKGROUND OF THE INVENTION

Grooming of animals, especially large quadrupeds,
often results in a handler of the animal being subjected
20 to undesirable bending and reaching positions resulting
in fatigue and pain. Such is also the case when
attempting to treat injuries or illnesses of animals. In
addition, shoeing of horses can be difficult for a
farrier due to the size and weight of the horse, and the
25 bent over position required during the hoof trimming and
shoeing process. Additionally, injury to the farrier
can result when an animal is resistant to being shod.

A solution to these ergonomic problems may be to elevate the animal to facilitate working on the legs; or lowering the animal to facilitate working on the upper body and head. However, the lifting and lowering of large animals is difficult without causing injury or discomfort. Various systems utilizing hip clamps or a hoist and sling arrangement are available. Such arrangements often require bulky machinery and may result in injury or discomfort to the animals being treated.

The use of slings can be satisfactory in some instances. However, slings have fallen out of favor because of the length of time required for setup, and the degree of difficulty in the setup and the balancing of the animal on the sling.

Devices to aid horse shoeing are well known in the prior art. U.S. Pat. No. 124,452 to Shimer, U.S. Pat. No. 286,389 to Coffey, U.S. Pat. No. 457,345 to Fox, and U.S. Pat. No. 1,330,807 to Ilieff disclose devices for immobilizing a horse's leg while raising the hoof to a limited degree whereby a horseshoe may be attached to the hoof. These devices are individually complex and are not disclosed to be used with other types of devices. Such structures are also inherently unstable and may result in an injury to the animal or the farrier.

U.S. Pat. No. 388,569 to Martin and U.S. Pat. No. 1,318,202 to Garnier disclose additional structures for

immobilizing a horse. U.S. Pat. No. 4,762,089 to McNulty discloses a device to tether a horse within a grooming stall, and U.S. Pat. No. 5,035,204 to Knoss discloses a head restraint device for a livestock chute.

- 5 Neither patent discloses a device enabling the restraining and shoeing of horse in a safe, quick, and easy manner.

It would be desirable to produce a system for raising and lowering an animal which minimizes injury and discomfort to the animal and facilitates a grooming,
10 shoeing, and treatment of the animal.

SUMMARY OF THE INVENTION

- Consistent and consonant with the present
15 invention, a system for raising and lowering an animal which minimizes injury and discomfort to the animal and facilitates a grooming, shoeing, and treatment of the animal, has surprisingly been discovered.

- The system for raising and lowering an animal
20 comprises: a platform for supporting an animal and movable to an upper level, an intermediate level, and a lower level; a vertically movable structure mounted for supporting the platform to selectably cause the platform to move to the upper level, the intermediate level, and
25 the lower level; and a rail structure supported by the platform to restrain the animal.

BRIEF DESCRIPTION OF THE DRAWINGS

The above, as well as other objects, features, and advantages of the present invention will be understood from the detailed description of the preferred

5 embodiments of the present invention with reference to the accompanying drawings, in which:

Fig. 1 is an elevational view of an animal raising and lowering system showing a supported animal at an intermediate level or ground level;

10 Fig. 2 is an elevational view similar to Fig. 1 showing the supported animal at a lower level or below ground level;

Fig. 3 is an elevational view similar to Figs. 1 and 2 showing the supported animal at an upper level or
15 above ground level;

Fig. 4 is a fragmentary top plan view of the system illustrated in Figs. 1, 2, and 3 showing the animal supporting platform is illustrated without the presence of the supported animal;

20 Fig. 5 is a fragmentary elevational view of the system illustrated in Figs. 1-4 showing a shoeing plate; and

Fig. 6 is a fragmentary perspective view showing the shoeing plate illustrated in Fig. 5.

25

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to Fig. 1, there is shown an animal raising and lowering system generally indicated by

reference numeral 10 for selectively raising and lowering animals to various heights in accordance with the present invention. The raising and lowering system 10 includes a platform 12 capable of supporting an
5 animal 14. The platform 12 is supported and stabilized by an elevator or vertically movable structure 16. A scissors lift mechanism 18 is provided in the embodiment shown. However, it is understood that other vertically movable structures or elevators can be used. In the
10 preferred embodiment, the scissors lift mechanism 18 is a double scissors mechanism for increased stability, however, other scissors lifts may be used. The vertically movable structure 16 also includes at least one hydraulic cylinder 20, which is controlled by an
15 electrically energized hydraulic power system including an electric motor 22 and control box 24, to cause the platform 12 to move upwardly and downwardly. Other conventional control and actuation systems can be used as desired such as a pneumatic system, for example. As
20 illustrated, the raising and lowering system 10 is housed in a cavity or a pit 26 formed in the ground 28. Other configurations may be used above ground including ramps or other ingress and egress devices (not shown), for example, without departing from the scope and spirit
25 of the invention. The platform 12 may be formed with a trap door or other access port (not shown) to facilitate entry into the pit 26 for maintenance or other purposes.

A rail structure 30 is formed on and supported by the platform 12. Uprights 32 support horizontally disposed rails or side rails 34 and rail extensions 36. Adjustable tool brackets 38 are provided on the uprights 5 32. A spring-loaded locking pin 40 cooperates with vertically arranged spaced apart locking holes 42 to provide a locking mechanism to effect selective vertical positions for the brackets 38. However, other conventional locking mechanisms can be used such as 10 clamp type, for example. Figs. 1, 2, and 3, show the platform 12 in respective intermediate, lower, and upper levels.

Referring now to Fig. 4, there is shown the raising and lowering system 10 illustrated in Figs. 1, 2, and 3 15 without the presence of the animal 14. Adjustable intermediate rails 44 are provided and slidably connected to the rails 34. Pins 46 and locking holes 48 cooperate to provide a locking mechanism for the intermediate rails 44. Other conventional locking 20 mechanisms can be used such as clamp type, for example. The rail 34 at each of the front end and the rear end of the raising and lowering system 10 is hingedly mounted to swing through the radius R and out of the way to permit ingress and egress of the animal 14.

25 Figs. 5 and 6 illustrate a shoeing plate 50 removably attached to the bracket 38. The shoeing plate 50 includes a hold down strap 52 disposed thereon. The

shoeing plate 50 can be rotated outwardly about a vertical axis.

In operation, the raising and lowering system 10 is operated by suitable mechanisms disposed in the control box 24. Typically, a first button (not shown) is depressed to energize the electric motor 22 of the associated hydraulic power system to cause the cylinders 20 to operate the scissors lift 18 and move the platform 12 from one horizontal position to another until a desired level is reached. A second button (not shown) may then be depressed to energize the hydraulic power system to cause the cylinder 20 to operate the scissors lift 18 and move the platform 12 to another horizontal position until another desired level is reached.

At the upper level or other desired position, a farrier can connect the shoeing plate 50 to the bracket 38 at a desired level. A leg 54 of the animal 14 can be rested on the shoeing plate 50 and held in place with the strap 52 as shown in Fig. 5. The animal 14 can also be restrained as desired using a lead rope (not shown) tied to the horizontally disposed rail 34 or the rail extension 36 and belly and back ropes (not shown) tied to the rails 34, if necessary. Additionally, grooming and treatment of illness or injury can be conducted. In the lower position, grooming and treatment of illness or injury can be conducted.

Locking mechanisms (not shown) are provided as a safety feature should the hydraulic power system fail

during operation. The locking mechanisms lock the hydraulic power system in place to militate against the platform 12 moving until appropriate repairs can be made.

5 In order to facilitate animals 14 of different sizes, the intermediate rails 44 are provided to enclose and contact the body of the animal 14. For a larger animal 14 such as a draft horse, for example, the intermediate rails 44 can be moved to the position shown
10 in Fig. 4. For a smaller animal 14 such as a pony, for example, the intermediate rails 44 can be adjusted to create a smaller inside area therebetween to more tightly and securely enclose the animal 14, as indicated by the arrows. Additionally, a spacer platform (not
15 shown) can be placed on the platform 12 to raise shorter animals 14 to a safer desired height with respect to the rail structure 30. Height adjustable uprights 32 can also be used to facilitate safely handling the shorter animals 14.

20 In one embodiment of the invention, the platform 12 may travel through a total of sixty (60) inches, or thirty (30) inches above ground level and thirty (30) inches below ground level.

25 From the foregoing description, one ordinarily skilled in the art can easily ascertain the essential characteristics of this invention and, without departing from the spirit and scope thereof, can make various

changes and modifications to the invention to adapt it to various usages and conditions.